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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/555,727

Filing Date: November 07, 2005

Appellant(s): SOPER ET AL.

Joseph Curatolo
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 22, 2010 appealing from the Office action mailed November 12, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the Appeal brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the Appeal brief is correct.
This appeal involves claims 1-20 which were rejected in the final office action dated 11/12/2009.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the Appeal brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the Appeal brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

A correct copy of appealed claims 1-20 appears on pages 29-31 of the Appendix to the appellant's brief.

(8) Evidence Relied Upon

US 5266335	Cherukuri et al.	11-1993
US 5912030	Huzinec et al.	6-1999
US 4515769	Merritt et al.	5-1985

Igoe, Robert S.; Hui, Y. H. Dictionary of Food Ingredients (4th Edition). (pp. 91-92). Springer – Verlag.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

For clarity, the section number for objections and rejections below have been changed to correspond with the sections used by the appellant in the argument part of the appeal brief.

Claim Objections

A. Objection to claim 9 for spelling of “colouring matter” being not acceptable US spellings has been withdrawn based on appellant’s arguments (Appeal brief page 13).

Claim Rejections

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

B. Claims 1-5, 8, 10-12, 15-16 and 20 are rejected under 35 U.S.C. §102(b) as being anticipated by Cherukuri et al (US 5266335), hereinafter Cherukuri.

Cherukuri teaches of products, such as, chewing gums and confections (Column 8, lines 39-47) comprising microencapsulated emulsion of particles comprising flavoring agent. Cherukuri discloses that a flavoring agent and resin emulsion is admixed with hydrophilic material, such as gelatin (i.e., polymer), to form an emulsion (Column 6, lines 38-43). Regarding the polymer being cross-linked, Cherukuri teaches of cross-linking the polymer, i.e., gelatin with a cross-linking agent, i.e., gluteraldehyde (Column 6, lines 64-65). The flavoring agent as disclosed by Cherukuri, include flavor oils (Column 4, lines 16-38), as claimed. Cherukuri also discloses of mixing resin and flavor

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oil optionally with emulsifiers to make a core emulsion and adding that core emulsion to hydrophilic polymer to make an emulsion comprising polymer, resin and hydrophilic polymer (See, Column 5, and lines 40-42, 58-60 and Column 6, lines 39-43).

Regarding the limitation of at least one filler, Cherukuri teaches addition of gum arabic (e.g., see Column 3, lines 20-35). Cherukuri further teaches that encapsulated flavors may be formulated in effective amounts with conventional additives, such as pharmaceutically acceptable carriers or confectionery ingredients (Column 7, lines 45-50), i.e., pharmaceutical carriers can also be added as fillers to the encapsulated flavor matrix. Thus, Cherukuri teaches of emulsion comprising cross-linked polymer, resin, flavor oil and gum arabic in an emulsion (i.e., a mixture of two or more immiscible or unblendable liquids, where one liquid is dispersed in the other), in other words Cherukuri discloses that oil and resin emulsion which is made part of polymer emulsion wherein polymer is cross-linked. Thus, the resulting emulsion with polymer as taught by Cherukuri (containing inclusions of first or core emulsion), will result in containing oil as a discontinuous phase and a plurality of inclusions of oil in the cross-linked polymer matrix (Column 5, line 40 to Column 6, line 43), wherein the oil is optionally flavor oil or fragrance oil (Column 4, lines 16-21), where the matrix comprises a cross-linked polymer and at least one filler.

Regarding claims 2-3, Cherukuri further teaches that polymer (or colloidal material) "may be selected from a group consisting of natural and synthetic colloidal materials such as gelatin, albumen, alginates, casein, agar-agar, starch, pectins, gum arabic,

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carboxymethyl cellulose, polyacrylic acid, polacrylamide, and the like, and mixtures thereof", which includes alginates and pectins (Column 6, lines 27-35), as claimed.

Regarding claim 4, Cherukuri teaches of matrix particles comprising gum arabic (Column 3, lines 20-35) or pharmaceutical carriers or food ingredients used as carriers (Column 7, lines 45-50), i.e., a filler selected from the group consisting of inorganic substances, organic substances, and combinations thereof, as instantly claimed.

Regarding claims 5, 15 and 16, Cherukuri teaches a matrix comprising a filler, e.g., gum arabic, which is added to equal parts of polymer, i.e., gelatin (Column 7, lines 19-21), i.e., filler in a ratio of about 1:1 to the polymer, which falls in appellants ranges for claims 5, 15 and 16.

Regarding claim 8, Cherukuri teaches of matrix particles that comprise coating (Column 3, lines 28-30).

Regarding claim 10, Cherukuri teaches of products including chewing gums and confections (Column 8, lines 39-47) comprising matrix particles.

Cherukuri teaches of encapsulated flavor matrix as recited in claim 1 and claim 11, (See Column 7, lines 10-45 and Column 20, line 20 to Column 21, line 10). Regarding the method of making the matrix as recited in claim 11, it is noted that even though product-

by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Further, in response to appellant's arguments that Cherukuri does not teach specific method steps (as argued on page 18, paragraph 2 of the Appeal Brief), parts of Cherukuri has been cited to show that process as recited in claim 11 is taught by Cherukuri, including the steps i) and ii) forming an emulsion comprising polymer, a filler and oil and forming matrix where oil is in a discontinuous phase, i.e., emulsion (Column 7, lines 29-31). Regarding steps iii) Cherukuri teaches hardening said matrix by cross-linking the polymer (Column 6, 59-65 and Column 7, lines 42-44) and step iv) Cherukuri teaches drying (Column 21, lines 5-8).

Regarding claim 12, Cherukuri teaches that polymer (or hydrophilic colloidal material) "may be selected from a group consisting of natural and synthetic colloidal materials such as gelatin, albumen, alginates, casein, agar-agar, starch, pectins, gum arabic, carboxymethyl cellulose, polyacrylic acid, polacrylamide, and the like, and mixtures thereof", (Column 6, lines 27-35), which includes carboxymethyl cellulose, i.e., cellulose polymers or derivatives as claimed.

Regarding claim 20, Cherukuri teaches of matrix particles comprising flavor oils and combinations thereof and gums and colloids, i.e., carriers, coating agents (Column 4, lines 16-68, Column 6, lines 27-35), i.e., at least one of an active, a stabilizer, or an excipient. Cherukuri also teaches of addition of emulsifiers or stabilizers to the flavor oil comprising matrix (Column 5, line 58 to Column 6, line 5), as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Appellant is advised of the obligation under

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37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

C. Claims 7, 13-14, 17-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Cherukuri (US 5266335).

Cherukuri has been applied to claims 1-5, 8, 10-12, 15-16 and 20 under 35 USC 102(b) in the office action above.

Cherukuri teaches of matrix particles comprising flavor oil (Column 4, lines 16-21), a cross-linked polymer, i.e., gelatin and gluteraldehyde (a cross-linking agent) (Column 6, lines 64-65) and at least one filler, i.e., gum arabic (Column 3, lines 20-35) for adding to foods and pharmaceuticals (Column 8, lines 39-47). Cherukuri further teaches that encapsulated flavors may be formulated in effective amounts with conventional additives, such as pharmaceutically acceptable carriers or confectionery ingredients (Column 7, lines 45-50), i.e., addition of pharmaceutical or food carriers which also act as bulking agents or fillers, to the encapsulated flavor matrix was known at the time of the invention, as taught by Cherukuri. Cherukuri also teaches of pharmaceuticals, confections, such as, chewing gums and confections as ingestible compositions comprising the flavor oil, cross-linked polymer and a filler (Column 7, lines 40-50 and Column 8, lines 48-49), i.e., chewing gum confection comprises a matrix comprising discontinuous phase of oil, i.e., flavor oil and cross-linked polymer and a filler.

Regarding bulking agents or carriers of claims 13 and 14, Cherukuri teaches of "bulking

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agents such as mineral adjuvants which may serve as fillers and textural agents. Useful mineral adjuvants include calcium carbonate, magnesium carbonate, alumina, aluminum hydroxide, aluminum silicate, talc, tricalcium phosphate, dicalcium phosphate, and the like, and mixtures thereof." (Column 11, line 65 to Column 12, line 10), which include carbonates, phosphates and silicates as recited in claims 13 and 14. Thus addition of fillers to a matrix comprising flavor oil, cross-linked polymer and a filler (as recited in claim 1 and 11), was known at the time of the invention. It would have been a matter of routine determination for one of ordinary skill in the art at the time of the invention to include one or more of bulking agents in a matrix comprising flavor oil and a cross-linked polymer, such as, in a confection or chewing gum or flavor encapsulating matrix. One of ordinary skill would have been motivated to do so at least for the purpose of providing bulk or texture to the matrix as taught by Cherukuri Column 11, lines 66-68.

Regarding the limitation of surface oil as recited in claims 7, 17-19, appellant has defined surface oil as "By "surface oil" is meant an undesirable concentration of oil occurring at the surface of particles" (Specification, Page 1, lines 25-26) and "Surface oil" is the weight percent of the sample that is oil which may be extracted from the sample by a simple solvent wash of the sample in a reagent that is non-intrusive to the sample matrix particles." (Specification, Page 2, lines 5-8), i.e., for the purpose of examination it is understood that "surface oil" is the amount of oil that escapes the matrix.

Regarding the surface oil, Cherukuri does not utilize the phrase "surface oil" but teaches that "encapsulated oil will not escape through the capsule walls" (Column 7, lines 1-5). Cherukuri also teaches that rate of cooling and gelling determines the size of pores of capsule or matrix particles, and that rapid cooling and gelling produces pore sizes that are small that the encapsulated oil will not escape (Column 6, lines 65-Column 7, line 5), i.e., less or no oil escapes to the surface of matrix particle. Cherukuri also teaches that after the particles are made, water and anti caking agent are added and the microcapsules are washed 4 times, filtered and then dried (Column 21, lines 1-8), i.e., Cherukuri endeavors to make matrix particles in such a manner that no encapsulated oil escapes the walls of the capsule or matrix particle as claimed which would result in reduced or no oil on the surface. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Cherukuri teaches of no or low surface oil. One of ordinary skill would have been motivated to modify Cherukuri and specify the amount of surface oil at least for the purpose of quantifying the level of excess oil contained in the matrix. One would have been further motivated to quantify the amount of surface oil in an encapsulated matrix at the time of preparation and several times during storage to determine the storage stability of the matrix comprising the flavor oil over time.

Further, it is noted that the appellant has described the product with parameters and equations which cannot be measured by the office for prior art comparison, because the office is not equipped to manufacture prior art products and compare them for patentability purposes. Therefore, as a prima facia case of obviousness has been

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properly established, the burden is shifted to the appellant to show that the prior art product is different.

D. Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cherukuri, in view of Huzinec et al (US 5912030), hereinafter Huzinec.

Cherukuri has been applied to claims 1-5, 8, 10-12, 15-16 and 20 under 35 USC 102(b) in the office action above.

Dictionary of Food Ingredients has been relied upon to provide evidence for various uses or applications of microcrystalline cellulose in the previous office actions of 3/3/09 and 11/12/09).

Regarding **claim 6**, Cherukuri teaches that matrix particles comprise one or more polymers and filler, as discussed above regarding claim 1. Cherukuri also discloses that colloidal material "may be selected from a group consisting of natural and synthetic colloidal materials such as gelatin, albumen, alginates, casein, agar-agar, starch, pectins, gum arabic, carboxymethyl cellulose, polyacrylic acid, polacrylamide, and the like, and mixtures thereof", which includes alginates, pectins and cellulose derivatives (Column 6, lines 27-35). Cherukuri teaches of food products comprising flavor oils that are microencapsulated in a matrix of polymers which include cellulose derivative carboxymethyl cellulose, but is silent about other forms of cellulose, including microcrystalline cellulose. Huzinec also teaches of comestibles with extended release additives including flavors and colors etc. (Huzinec Column 2, lines 32-39 and Column

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3, lines 38, 54-58), where the additives are mixed with a microcrystalline carrier material (i.e., polymer is a carrier for the flavor compound), including microcrystalline cellulose (Column 2, lines 15-19). Huzinec also teaches that the carrier, such as, Microcrystalline cellulose (MCC) has a property where more than one additives can be added to the carrier and each additive can be released either at the same time or at different times (Column 2, lines 8-13). Further it is noted that MCC works as a filler, binder, and flow aid and anti-caking agent and as suspension stabilizer, and emulsifier (as evidenced by Dictionary of Food Ingredients). Thus, addition of polymers as carriers or fillers was known in the art at the time of the invention (Cherukuri and Huzinec), and use of microcrystalline cellulose as a carrier or filler for flavors and colors etc., was also known (Huzinec). Further Huzinec teaches that MCC as a carrier can contain other additives that aid in providing desirable properties, such as, dispersants including gum arabic, carboxymethyl cellulose (Column 2, lines 12-17) in conjunction with flavors that are free or encapsulated to provide a delayed or sequential release of additives in a composition (Column 3, lines 35-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Cherukuri in view of Huzinec and include microcrystalline cellulose to the matrix as a polymer that works as a carrier or filler. One of ordinary skill would have been motivated to modify Cherukuri at least for the purpose of producing a flavor matrix comprising one or more active ingredient or oil/ flavor oils wherein the matrix particles remain stable and have a delayed release property.

E. Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cherukuri, in view of Merritt et al (US 4515769), hereinafter Merritt.

Cherukuri has been applied to claims 1-5, 8, 10-12, 15-16 and 20 under 35 USC 102(b) in the office action above

Regarding claim 9, Cherukuri teaches of matrix particles comprising flavor oil (Column 4, lines 16-21), a cross-linked polymer, i.e., gelatin and gluteraldehyde (a cross-linking agent) (Column 6, lines 64-65) and at least one filler, i.e., gum arabic (Column 3, lines 20-35) for adding to foods and pharmaceuticals (Column 8, lines 39-47). However, Cherukuri teaches of various flavor oils, such as cinnamon oil, clove oil, spearmint oil, anise oil, eucalyptus oil, thyme oil, which have certain colors associated with them; however, Cherukuri is silent about specifically stating that matrix particles comprise coloring matter. Merritt teaches of encapsulated flavoring material comprising coloring material to add an interesting element to the product (Column 11, lines 17-20). Thus, encapsulation of flavoring agents that naturally may have some color (Cherukuri) or with added coloring matter were known and available at the time of the invention (Merritt). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Cherukuri in view of Merritt and include color in matrix particles as disclosed by Cherukuri in claim 1. One of ordinary skill would have been motivated to modify Cherukuri at least for the purpose of producing an encapsulated flavor and a composition containing a flavor with interesting appearance (Merritt Column 11, line 18-20).

10) Response to Arguments

For clarity, the section number for response to each argument below is the same as the used by the appellant in the appeal brief.

In section A, on page 13, appellant argues against examiner's objection to the spelling of "colouring" which does not conform to US spellings. Appellant's arguments have been considered and the objection has been withdrawn.

Section B (pages 14-19, paragraph 2):

Appellant argues (on page 14, last paragraph), against examiner's position and states that Cherukuri does not teach the invention as claimed. Specific arguments presented by the appellant are "Cherukuri et al. do not disclose matrix particles containing a plurality of inclusions of oil", "Cherukuri et al fail to disclose a plurality of inclusions within a microcapsule" and Cherukuri also does not teach matrix particles comprising discontinuous phase of plurality of inclusions of oil (Appeal brief, pages 14, last paragraph to page 15, paragraph 3). These arguments are not persuasive for the following reasons:

- i) Cherukuri teaches of edible products, such as, chewing gums and confections (Column 8, lines 39-47) comprising microencapsulated emulsion of particles of flavoring

agent. Cherukuri discloses that flavoring agent and resin emulsion is admixed with hydrophilic material, such as gelatin (i.e., polymer), to form an emulsion (Column 6, lines 38-43). Regarding the polymer being cross-linked, Cherukuri teaches of cross-linking the polymer, i.e., gelatin with a cross-linking agent, i.e., gluteraldehyde (Column 6, lines 64-65). The flavoring agent as disclosed by Cherukuri, include flavor oils (Column 4, lines 16-38). Cherukuri also discloses of mixing resin and flavor oil optionally with emulsifiers to make an emulsion and adding the resin and flavor oil emulsion to colloidal material, i.e., hydrophilic polymer, to form an emulsion (See, Column 5, lines 40-42, 58-60 and Column 6, lines 39-43). Regarding the limitation of at least one filler, Cherukuri teaches addition of gum arabic (Column 3, lines 20-35). Cherukuri further teaches that encapsulated flavors may be formulated in effective amounts with conventional additives, such as pharmaceutically acceptable carriers or confectionery ingredients (Column 7, lines 45-50), i.e., pharmaceutical carriers can also be added as fillers to the encapsulated flavor matrix. Further, claim 1 recites a transitional phrase "matrix particles comprising" in line 1 of claim and "matrix comprising" in line 3 of the claim, which is inclusive or open-ended and does not exclude additional, unrecited elements or method steps (See MPEP 2111.03 [R-3]). Thus, the term "matrix" as recited can have other ingredients and components in addition to flavor oil, cross-linked polymer and at least one filler. Based on the above discussion Cherukuri's chewing gum (Column 8, line 39 to Column 17, line 17) can be the matrix comprising cross-linked polymer, resin and flavor oil and gum arabic or other fillers. Thus, Cherukuri teaches of a composition comprising in an emulsion. An emulsion is a mixture of two or more

immiscible or unblendable liquids, where one liquid is dispersed in the other, where one liquid is a continuous phase and another in discontinuous and since Cherukuri teaches of adding oil first to resin to make an emulsion and then the oil-resin emulsion is added to aqueous solution of hydrophilic colloidal material, (such as, gelatin) which makes an emulsion by coating or surrounding the oil-resin emulsion (see, Columns 5, lines 40-45, 58-61 and Column 6, lines 35-65), it is inherent that the final emulsion as taught by Cherukuri comprises plurality of inclusions of flavor oil where the oil is in a discontinuous phase as discussed in the rejection. Thus, Cherukuri discloses of matrix particles comprising a discontinuous phase of a plurality of inclusions of oil (Column 5, line 40 to Column 6, line 43) wherein the oil is optionally flavor oil or fragrance oil (Column 4, lines 16-21), where the matrix comprises a cross-linked polymer and at least one filler.

ii) Regarding the argument that "Cherukuri et al. fail to disclose a plurality of inclusions within a microcapsule" (Appeal Brief, page 15), appellant is referred to the rejection above and also referred to figure 1, where some of the microcapsules appear to have more than one inclusion, i.e., plurality of inclusions (see specifically left end of the figure). It is also noted that the features argued by the appellant "plurality of inclusions within a microcapsule" have not been recited in the rejected claims; claims recite a plurality of inclusions within a matrix, which may or may not comprise a microcapsule and can be a matrix for a confection, such as a chewing gum (emphasis added). Although the claims are interpreted in light of the specification, limitations from

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the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

iii) Appellant also argues that Cherukuri does not teach filler as recited in **claim 4** as per the "definition of a filler provided in Appellant's specification (Appeal brief, page 16, paragraph 1, line 6) and that "gum arabic as disclosed in Cherukuri et al. can not be considered to be a filler as presently claimed" (Appeal brief, page 16, paragraph 3, lines 5-6). Appellant also argues that resins of Cherukuri are different from fillers as claimed in the invention as Cherukuri adds resins to flavor oil and not to the polymer matrix (Appeal brief, page 17, paragraph 2) Appellant's arguments regarding the limitation of claim 4 are not persuasive for the following reasons:

Firstly, the rejected claim 4, recites the limitation that "filler can be an organic substance, inorganic substance and combination of any or all of the aforementioned substances", and Gum arabic as taught by Cherukuri (Column 7, line 20) fulfills the recited criteria.

Secondly in response to appellant's argument that Cherukuri's resins (Column 5, lines 40-45) are also different from fillers because they are added to flavor oil and not to the polymer matrix, it is noted that resin and flavor oil emulsion is added to the polymer to form an emulsion (Column 6, lines 35-65) and resin also falls in the recited limitation of "filler can be an organic substance, inorganic substance and combination of any or all of the aforementioned substances", where resin also fulfills the recited limitation for a filler.

Thirdly, in response to appellant's argument that gums and specifically gum arabic of Cherukuri can not be considered as a filler as per the definition given in the specification, it is noted that appellants' have not defined the term "filler" but merely provided examples of fillers (Specification, page 3, line 21 to page 4, line 25). The disclosure provides examples by disclosing "Fillers for polymeric materials are well known in the plastics art. They are generally cheap, readily-available organic and inorganic materials, used to extend the materials and reduce costs." (emphasis added) (See Specification, page 3, lines 22 -25). The specification further provides example that "preferred filler is microcrystalline cellulose (MCC). Appellant's disclosure further clarifies that "microcrystalline cellulose ... disperses in water and has the properties of a gum." (Specification, page 4, lines 4 and 20-21) and that filler "materials include non-starch polysaccharides, celluloses, modified starches, and other polymers, including proteins." (Specification, page 4, lines 26-29). Thus, based on the general examples in appellants' disclosure a gum, cellulose polymer or microcrystalline cellulose or derivative thereof constitutes filler (Specification, page 3, and lines 28-29).

Lastly, in response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., a specific filler as disclosed in appellant's specification) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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iv) Appellant's argument regarding **claim 11**, is that Cherukuri does not teach "hardening said matrix particles by cross-linking the polymer" or "drying the cross-linked matrix particles" as claimed in the process of claim 11. In response to appellant's arguments that Cherukuri does not teach specific method steps (as argued on page 18, paragraph 2 of the Appeal Brief) it is noted that appellant's arguments are not persuasive and the method steps as claimed were taught by Cherukuri, including the steps step iii) where Cherukuri teaches hardening said matrix by cross-linking the polymer (Column 6, 59-65 and Column 7, lines 42-44) and step iv) Cherukuri teaches drying (Column 21, lines 5-8).

Further it is noted that claim 11 depends from a product claim and recites method steps, i.e., claim 11 is a product-by-process claim, as discussed in the rejections previously. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

v) Appellant's argument regarding **claim 20**, is that "emulsifiers and stabilizers disclosed in Cherukuri et al. are "added to the resin melt to form a core emulsion" and not to the polymer matrix" (Appeal brief, page 18, last paragraph, lines 3-4). Appellant's argument is not persuasive because the claims are directed to a composition with

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"matrix particles comprising at least one of an ...a stabilizer", and Cherukuri teaches adding emulsifier to resin melt of core emulsion (Column 5, lines 58-60), which will emulsify the oil and stabilize the emulsion, i.e., emulsifier will also act as a stabilizer. Cherukuri further teaches that the core emulsion is added to hydrophilic colloidal material (i.e., polymer as claimed) to form an emulsion (Column 6, lines 35-54), i.e., matrix, which inherently makes emulsifiers/stabilizers of core emulsion a part of the emulsion with hydrophilic colloidal material (i.e., polymer) or matrix, as per the recitation of claim 20.

Thus Appellant's arguments provided in section B of the Appeal brief (Pages 14-19, line 5) have been fully considered and have not been found persuasive.

Section C (pages 19 to page 22, paragraph 2):

Appellant argues (on page 19, last paragraph to page 20, paragraph 2), against examiner's position and states that Cherukuri et al. do not disclose, suggest or provide motivation for bulking agents, such as mineral adjuvants, which may serve as fillers" (Appeal brief, Page 20, paragraph 2). This argument is not persuasive for the following reasons:

- i) **Claim 13 and 14** depend from claim 1, which is directed to a composition with "matrix particles comprising" which is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. Cherukuri teaches of matrix particles

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comprising flavor oil (Column 4, lines 16-21), a cross-linked polymer, i.e., gelatin and gluteraldehyde (a cross-linking agent) (Column 6, lines 64-65) and at least one filler, i.e., gum arabic (Column 3, lines 20-35) added to confections, such as chewing gums etc (Column 8, line 39-Column 17, line 17) and other foods and pharmaceuticals (Column 8, lines 39-47). Cherukuri further teaches that encapsulated flavors may be formulated in effective amounts with conventional additives, such as pharmaceutically acceptable carriers or confectionery ingredients (Column 7, lines 45-50), i.e., addition of pharmaceutical or food carriers or bulking agents as fillers to the encapsulated flavor matrix was known at the time of the invention, as taught by Cherukuri. Cherukuri also teaches of confections, such as, chewing gums and confections as ingestible compositions comprising the flavor oil, cross-linked polymer and a filler (Column 7, lines 40-50 and Column 8, lines 48-49), i.e., chewing gum matrix comprising discontinuous phase of oil, optionally flavor oil and cross-linked polymer and a filler. Regarding bulking agents or carriers of claims 13 and 14, Cherukuri teaches of "bulking agents such as mineral adjuvants which may serve as fillers and textural agents. Useful mineral adjuvants include calcium carbonate, magnesium carbonate, alumina, aluminum hydroxide, aluminum silicate, talc, tricalcium phosphate, dicalcium phosphate, and the like, and mixtures thereof." (Column 11, line 65 to Column 12, line 10), which include carbonates, phosphates and silicates as recited in claims 13 and 14. Thus addition of fillers to a matrix comprising flavor oil, cross-linked polymer and a filler (as recited in claim 1 and 11), was known at the time of the invention. Therefore, it would have been a matter of routine determination for one of ordinary skill in the art at the time of the

invention to include one or more of bulking agents in a matrix comprising flavor oil and a cross-linked polymer, as in a confection or chewing gum or flavor encapsulating matrix. One of ordinary skill would have been motivated to do so at least for the purpose of providing bulk or texture to the matrix as taught by Cherukuri Column 11, lines 66-68.

Further, appellant's argument that "Cherukuri et al. do not ...even suggest that a filler should be added to the wall of such particle" (Appeal brief, page 20, paragraph 2, last 2, lines) is also not persuasive. In response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., filler added to the wall of matrix particle) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

ii) Appellant's arguments regarding Cherukuri in relation to claims 7, 17-19 include "Cherukuri et al. fail to provide any reference to "surface oil" whatsoever" (Appeal brief, Page 21, line 1) and "Nowhere do Cherukuri et al state microcapsules as containing "no or low surface oil" (Appeal brief , Page 21, paragraph 4, line 1) there is no explanation as to the location, where one would attempt to quantify the potential lack of any oil released from the capsules (Appeal Brief, page 21, lines 6-8). These arguments are not persuasive for the following reasons:

The limitation of "surface oil", has been discussed in the rejection of claims 7, 17-19 (Rejection C). Cherukuri does not recite the term "surface oil" and appellant has defined

it as "By "surface oil" is meant an undesirable concentration of oil occurring at the surface of particles" (Specification, Page 1, lines 25-26) and "Surface oil" is the weight percent of the sample that is oil which may be extracted from the sample by a simple solvent wash of the sample in a reagent that is non-intrusive to the sample matrix particles." (Specification, Page 2, lines 5-8), i.e., it is understood that "surface oil" is the amount of oil that escapes the matrix. Cherukuri teaches of a polymer matrix comprising flavor oil and filler where the polymer upon rapid cooling and gelling produces pore sizes that are small that "the encapsulated oil will not escape" (Column 6, lines 65- Column 7, line 5), i.e., less or no oil escapes to the surface, or that the surface oil can be reduced or eliminated. Cherukuri also teaches that after the particles are made, water and anti caking agent are added and the microcapsules are washed 4 times, filtered and then dried (Column 21, lines 1-8), which further reduces the possibility of surface of polymer particles or matrix having "surface oil". Thus, Cherukuri's endeavor is to remove all surface oil. Thus, appellant's allegation that "Cherukuri et al. fail to provide any reference to "surface oil" whatsoever" (Appeal brief, page 21, line 1) is unsupported. The corresponding motivation is also provided in the rejection of claims 7, 17-19 and appellant has not provided any arguments as to why this motivation is invalid. Further, as stated in the rejection of claims, it is noted that the appellant has described the product with parameters and equations which cannot be measured by the office for prior art comparison, because the office is not equipped to manufacture prior art products and compare them for patentability purposes. Therefore, as a prima facia

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case of obviousness has been properly established, the burden is shifted to the appellant to show that the prior art product is different.

Regarding the argument that there is no explanation as to the location, where one would attempt to quantify the potential lack of any oil released from the capsules, Cherukuri discloses that "Encapsulated oil will not escape through the capsule walls", i.e., surface of microcapsule or matrix particle as claimed.

iii) Appellant's argue that "Cherukuri et al. do not disclose a discontinuous phase of oil, but only a single oil core" (Appeal brief, page 21, Paragraph 2, lines 1-2) and that "Cherukuri et al. fail to teach or suggest a matrix having a cross-linked polymer wall and a plurality of discontinuous inclusions of oil in the matrix as claimed in claim 1" (Appeal Brief, page 22, paragraph 2, lines 1-3), both arguments have already been discussed in section B of response to arguments above.

Further, in response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., "cross-linked polymer wall" (Appeal brief, page 22, paragraph 2, lines 1-3)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Section D (page 22, paragraph 3 to Page 25, paragraph 1):

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Appellant argues (on page 22, last paragraph to page 25, paragraph 1), against examiner's position about **claim 6** and states that "Cherukuri et al. do not provide any suggestion or motivation to utilize a filler in the particles whatsoever...even when considered in view of Huzinec et al." (Appeal brief, page 23, paragraph 2). This argument is not persuasive for the following reasons:

- i) **Claim 6** depend from claim 1, which is directed to a composition with "matrix particles comprising" which is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. Cherukuri teaches of matrix particles comprising flavor oil (Column 4, lines 16-21), a cross-linked polymer, i.e., gelatin and gluteraldehyde (a cross-linking agent) (Column 6, lines 64-65) and at least one filler, i.e., gum arabic (Column 3, lines 20-35) as part of confections, such as chewing gums etc (Column 8, line 39-Column 17, line 17) and other foods and pharmaceuticals (Column 8, lines 39-47). Cherukuri further teaches that encapsulated flavors may be formulated in effective amounts with conventional additives, such as pharmaceutically acceptable carriers or confectionery ingredients (Column 7, lines 45-50), i.e., addition of pharmaceutical or food carriers (also categorized as bulking agents or fillers) to the encapsulated flavor matrix was known at the time of the invention, as taught by Cherukuri. Cherukuri also teaches of confections, such as, chewing gums and confections as ingestible compositions comprising the flavor oil, cross-linked polymer and a filler (Column 7, lines 40-50 and Column 8, lines 48-49), i.e., chewing gum is a matrix comprising discontinuous phase of oil, optionally flavor oil and cross-linked

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polymer and a filler. Thus as recited in claims 1 and 6 Cherukuri suggests flavor oil comprising matrix further comprising other additives, fillers or carriers and Huzinec provides a specific filler or carrier microcrystalline cellulose, as discussed in the rejection of claim 6.

Further, regarding the motivation to combine Cherukuri and Huzinec, Cherukuri teaches of food products comprising flavor oils that are microencapsulated in a matrix of polymers which include cellulose derivative carboxymethyl cellulose, but is silent about other forms of cellulose, including microcrystalline cellulose. Huzinec also teaches of comestibles with extended release additives including flavors and colors etc. (Huzinec Column 2, lines 32-39 and Column 3, lines 38, 54-58), where the additives are mixed with a microcrystalline carrier material (i.e., polymer is a carrier for the flavor compound), including microcrystalline cellulose (Column 2, lines 15-19). Huzinec also teaches that the carrier, such as, Microcrystalline cellulose (MCC) has a property where more than one additives can be added to the carrier and each additive can be released either at the same time or at different times (Column 2, lines 8-13). Further it is noted that MCC works as a filler, binder, and flow aid and anti caking agent and as suspension stabilizer, and emulsifier (as evidenced by Dictionary of Food Ingredients). Thus, addition of polymers as carriers or fillers was known in the art at the time of the invention (Cherukuri and Huzinec), and use of microcrystalline cellulose as a carrier or filler for flavors and colors etc. was also known (Huzinec). Further Huzinec teaches that MCC as a carrier can contain other additives that aid in providing desirable properties, such as, dispersants including gum arabic, carboxymethyl cellulose (Column 2, lines 12-

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17) in conjunction with flavors that are free or encapsulated to provide a delayed or sequential release of additives in a composition (Column 3, lines 35-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Cherukuri in view of Huzinec and add microcrystalline cellulose to the matrix comprising flavor oil, as a carrier or filler. One of ordinary skill would have been motivated to modify Cherukuri at least for the purpose of producing a flavor matrix comprising one or more active ingredient or oil/ flavor oils wherein the matrix particles remain stable and have a delayed release property.

ii) Appellant's also argue that "Huzinec et al fail to suggest a matrix having a cross-linked polymer wall and a plurality of discontinuous inclusions of oil" (Appeal brief, page 24, paragraph 3). This argument is not persuasive. In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the instant case matrix having a cross-linked polymer and a plurality of discontinuous inclusions of oil is taught by Cherukuri as discussed above in rejection of claim 1 and also in response to arguments Section D step i).

Further, in response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., "cross-linked polymer wall" (Appeal brief, page 24, paragraph 3))

are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

iii) Appellant's other argument that "Huzinec et al. teach away from the present claims", (Appeal brief, page 24, paragraph 4) and appellant's arrive at this conclusion based on the statement "encapsulation of additives such as flavors and sweeteners is time consuming and expensive" (Appeal brief, page 24, paragraph 4). This argument is also not persuasive. The examiner submits that a statement that Huzinec's statement that "encapsulation of additives such as flavors and sweeteners is time consuming and expensive" does not change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP § 2143.01. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference Cherukuri. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983). It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review." and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973). Combining the teachings of references does not involve an ability to combine their specific structures. Thus, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of

references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, prior arts must be considered in entirety, including disclosures that teach away from the claims, MPEP § 2143.01-02.

Section E (page 25, paragraph 2 to Page 27):

Appellant argues (on page 25, paragraph 2 to page 27), against examiner's position for **claim 9** and states that "no motivation exists to combine Cherukuri et al. with Merritt et al to make the encapsulated flavor particles as presently claimed, but in fact Merritt et al. expressly teach against the claimed subject matter of claim 9 (Appeal brief, page 26, lines 8-11). Appellant's seem to arrive at this conclusion based on statement from Merritt et al. "when a coloring material is to be incorporated, it should be incorporated into the cores of the material, not into the water insoluble coating, since unless the coloring matter is sealed by water insoluble coating, the coloring matter will tend to leach out into the composition in which the encapsulated flavorant is placed (Appeal brief, page 26, 3-7 and Merritt, Column 11, lines 25-32). These arguments are not persuasive for the following reasons:

- i) Regarding the combination of Cherukuri and Merritt for claim 9, Cherukuri teaches of matrix particles comprising flavor oil (Column 4, lines 16-21), a cross-linked polymer, i.e., gelatin and gluteraldehyde (a cross-linking agent) (Column 6, lines 64-65)

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and at least one filler, i.e., gum arabic (Column 3, lines 20-35) for adding to foods and pharmaceuticals (Column 8, lines 39-47). However, Cherukuri teaches of various flavor oils, such as cinnamon oil, clove oil, spearmint oil, anise oil, eucalyptus oil, thyme oil, which have certain colors associated with them; however, Cherukuri is silent about specifically stating the matrix particles comprise coloring matter. Merritt teaches of encapsulated flavoring material (Column 10), with gelatin and gluteraldehyde as polymer and cross-linking agent, as taught by Cherukuri, i.e., Cherukuri and Merritt are analogous art. The encapsulated composition as taught by Merritt can include coloring material to add an interesting element to the product (Column 11, lines 17-20). Thus, encapsulation of flavoring agents that naturally may have some color (Cherukuri) or with added coloring matter were known and available at the time of the invention (Merritt). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Cherukuri in view of Merritt and include color in the matrix particles. One of ordinary skill would have been motivated to modify Cherukuri at least for the purpose of producing an encapsulated flavor and a composition containing a flavor with interesting appearance (Merritt Column 11, line18-20). Thus, appellant's argument that there is no motivation for combining Cherukuri and Merritt is not persuasive.

- ii) Regarding the argument that Merritt et al. expressly teach against the claimed subject matter of claim 9 (Appeal brief, page 26, lines 8-11), based on Merritt (Column 11, lines 25-32) and (Appeal brief, page 26, 3-7). This argument is also not persuasive. The examiner submits that a statement that Merritt's statement that that "when a

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coloring material is to be incorporated , it should be incorporated into the cores of the material, not into the water insoluble coating , since unless the coloring matter is sealed by water insoluble coating, the coloring matter will tend to leach out into the composition in which the encapsulated flavorant is placed" does not change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP § 2143.01. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference Cherukuri. Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also *In re Sneed*, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983). It is not necessary that the inventions of the references be physically combinable to render obvious the invention under review." and *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973). Combining the teachings of references does not involve an ability to combine their specific structures. Thus, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, prior arts must be considered in entirely, including discloses that teach away from the claims, MPEP § 2143.01-02.

Further, it is noted that the claim 9, recites "matrix particles according to claim 1, comprising colouring matter", i.e., inclusion of the coloring matter in the core does not teach against the invention as claimed either.

iii) Appellant's also argue that "Merritt taken alone or in combination with Cherukuri et al., fail to teach or suggest a matrix having a cross-linked polymer wall and a plurality of discontinuous inclusions of oil in the matrix as claimed in claim 1, incorporated in claim 9 (Appeal brief, page 27, last paragraph, lines 1-3), In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the instant case matrix having a cross-linked polymer and a plurality of discontinuous inclusions of oil is taught by Cherukuri as discussed above in rejection of claim 1 and also in response to arguments Section D step i).

Further, in response to appellant's argument that the references fail to show certain features of appellant's invention, it is noted that the features upon which appellant relies (i.e., "cross-linked polymer wall" (Appeal brief, page 27, last paragraph lines 1-3)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Therefore, appellant's arguments regarding rejection of claim 9 over Cherukuri in view of Merritt have not been found persuasive.

(11) Related Proceeding(s) Appendix

For the above reasons, it is believed that the rejections of claims 1-20 should be sustained.

Respectfully submitted,

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